GOVERNMENT OF WESTERN AUSTRALIA

Infrastructure Western Australia

Major Infrastructure Proposal Assessment

Water Corporation

Subiaco Water Resource Recovery Facility Treatment Capacity Upgrade

Summary Assessment Report

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Acknowledgment of Country

Infrastructure WA acknowledges the Traditional Custodians of Western Australia and their continuing connection to the land, waters and community. We pay our respects to all members of the Aboriginal communities and their cultures; and to Elders both past and present.

Purpose

This assessment report has been prepared in carrying out Infrastructure WA's (IWA) legislative function to assess and report to the Premier on major infrastructure proposals. The assessment is of the business case for Water Corporation's Subiaco Water Resource Recovery Facility Treatment Capacity Upgrade (Subiaco WRRF). Additional supporting information received from the proponent and consultation with relevant key stakeholders has also been used by IWA to support its analysis.

IWA observations

IWA considers that the proposal to upgrade the Subiaco WRRF demonstrates strategic merit and aligns with WA Government priorities including infill development, environmental protection, and net zero targets. The business case supports expected population growth to 2052 through a 34% increase in treatment capacity, with strong links to major redevelopment projects.

The preferred Option (New Compact Plant) is considered sufficiently defined to support a WA Government investment decision.

In addition, the business case outlines an opportunity to reduce the odour buffer zone to support additional development within the precinct. The business case outlines that further investigations and investment to achieve this can be incorporated during project delivery, if approved by the WA Government. Given the significant potential benefits of this, IWA recommends that Water Corporation seek approval to investigate and progress this opportunity.

1. Context

1.1 Project background

The Subiaco Water Resource Recovery Facility (WRRF), located in Shenton Park approximately 6 km west of the Perth CBD, is the oldest and third-largest wastewater treatment facility in metropolitan Perth. The Subiaco WRRF services approximately 250,000 residents and a mix of commercial, medical and industrial users. The facility operates under a Department of Water and Environmental Regulation (DWER) licence to protect public health and the marine environment.

Water Corporation has developed a business case to upgrade the Subiaco WRRF to a new compact plant increasing capacity to meet forecast demand, maintain environmental compliance, and support strategic infill development. The upgrade is also expected to provide the opportunity to defer planned upgrades to the Woodman Point WRRF until 2039 which provides economic and delivery sequencing benefits.

2. Strategic merit

2.1 Alignment

The Subiaco WRRF upgrade aligns with key WA Government strategies including the State Infrastructure Strategy, Perth and Peel @ 3.5 million, and the State Planning Strategy 2050 by enabling infill development and supporting population growth in the Perth Central Business District (CBD) and inner-western suburbs.

The proposal supports Water Corporation's Thrive2035 strategy and the WA Climate Policy by enabling energy recovery, reducing greenhouse gas emissions, and expanding wastewater recycling.

The business case acknowledges the upgrade will support major redevelopment projects including Future of Fremantle, Perth CBD, Subi East, and Edith Cowan University City Campus. Water Corporation has engaged with Development WA and the Department of Planning and Land Heritage to inform population and inflow forecasts, using WA Tomorrow, Strategic Asset Forecasting and Inflow Modelling and Australian Bureau of Statistics data.

2.2 Problems and opportunities

Key problems the proposal addresses include limited capacity and ageing infrastructure. Opportunities include energy recovery, recycled water expansion, and outlines the opportunity to unlock potential high-value land that is currently constrained by odour buffers.

Water Corporation has presented clear evidence that the Subiaco WRRF is operating near its licensed capacity, with key treatment processes operating at high utilisation and ageing infrastructure contributing to high maintenance costs and reduced reliability. Opportunities are supported by odour modelling and economic analysis indicating that buffer reduction could unlock hectares of developable land, while sustainability benefits include expanded recycled water use, energy recovery, and alignment with net zero targets.

3. Options assessment

Water Corporation undertook a comprehensive options assessment process, beginning with a longlist of over 20 strategic interventions that included both asset and non-asset solutions. These were evaluated using a Multi-Criteria Analysis (MCA) framework with weighted criteria and stakeholder input. The rationale for exclusions and the screening criteria is clearly documented in the business case.

Three options were shortlisted for detailed analysis:

- Retrofit Plant
- New Compact Plant (this is the preferred option)
- New Compact Plant with Odour Buffer Reduction

The business case demonstrates good practice in aligning the options assessment with Strategic Asset Management Framework (SAMF) guidance. Sustainability objectives are embedded in the preferred option, and while Aboriginal participation and digital initiatives are referenced, they are not central to option selection. IWA recommends that Water Corporation ensure future proposals (beyond the current submission) provide more detailed analysis in these areas.

4. Societal impacts

4.1 Economic and financial assessment

The business case includes a cost-benefit analysis aligned with SAMF and national guidelines, comparing three options and incorporating sensitivity testing. The New Compact Plant (preferred option) presents a benefit-cost ratio (BCR) of 1.2, with nearly half of its monetised benefits attributed to the deferral of over $1.1 billion in upgrades to Woodman Point WRRF and the Sepia Depression Ocean Outlet Landline (SDOOL) that would otherwise be needed. However, given the significant contribution to the investment case from the economic benefits of deferring these upgrades, IWA recommends that the feasibility and timing of deferral of the Woodman Point WRRF upgrades be carefully defined as part of subsequent development.

The project cost estimates are based on a Class 4 design, with a P90 contingency of 32%. IWA recommends further refinement of cost estimates during the Project Definition Plan (PDP) phase to ensure adequate contingency is in place to support project delivery.

IWA recommends that Water Corporation develop a staged investment plan and funding pathway for any offsite asset upgrades required by the Subiaco WRRF project, ensuring WA Government is informed of system-wide impacts and potential future investments.

4.2 Social assessment

The social impact assessment has a clear methodology and comparative analysis of options. The New Compact Plant is expected to deliver better social outcomes than the alternatives due to reduced construction disruption, while remaining compatible with potential future upgrades.

Water Corporation has expanded stakeholder engagement regarding the option to reduce the odour buffer zone, acknowledging concerns raised in local planning documents. IWA recommends Water Corporation continue to undertake engagement with affected stakeholders to ensure their concerns are fully addressed.

4.3 Environmental assessment

The business case outlines mitigation strategies for environmental risks, including potential impacts to black cockatoo habitat and vegetation clearing. Water Corporation has committed to early engagement with environmental regulators and Traditional Owners, which IWA considers appropriate. The preferred option presents lower environmental risk compared with the alternatives and includes features that support long-term sustainability, such as improved effluent quality, energy recovery and compatibility with future recycled water schemes. IWA recommends formalising engagement processes and integrating them into project delivery.

5. Recommended Option: Project definition

The preferred option involves constructing a new compact plant with 90 megalitres (ML) per day capacity relative to the base case of 67 ML/day for the existing facility. It includes advanced primary and secondary treatment processes, a new odour control facility (including bio trickling filters and activated carbon filters), with ducting from each process area to the new odour control facility, energy recovery, and compatibility with future expansion to 120 ML/day when required.

Whole of project costs for this option are estimated at around $1.3 billion (estimate includes all cost components, and is not indicative of expected market pricing for procurement), with planning from 2026-27 and final commissioning complete in the early 2030's. This estimate reflects total project costs – including design, construction, demolition, project-wide costs, escalation and contingency, and will be subject to refinement as the project progresses through detailed engineering, approvals and procurement. Benefits stated for this proposal include supporting growth and development, protecting public health and the environment, reducing greenhouse gas (GHG) emissions, maximising resource recovery.

Given the potential material benefits from reducing the buffer zone, IWA recommends that Water Corporation seek WA Government approval to continue explore odour buffer reduction options. This should include stakeholder engagement, validation of land use assumptions, and establishing a framework to assess economic and planning benefits. The additional scope remains a strategic opportunity and could be included as a separable portion before the final funding decision.

6. Deliverability

The business case sets out a clear implementation strategy, confirming alignment with Early Contractor Involvement (ECI) transitioning to Design and Construct (D&C). To address industry-wide labour shortages, it incorporates early market engagement and phased delivery approaches. IWA recommends ongoing monitoring and collaboration with industry to maintain delivery capacity.

There is some existing infrastructure at the Subiaco WRRF site that will be retained with the upgrade, rather than being replaced. Water Corporation acknowledges that these retained assets are in adequate condition and do not require upgrades within the scope of this project. However, it also notes that lifecycle costs for these assets have been included in the project cost estimates to ensure they can continue to deliver appropriate service levels. IWA recommends that Water Corporation continue to clarify the treatment of retained infrastructure and odour containment measures in future planning stages.

The business case includes a robust risk framework addressing operational, regulatory, and technology risks. IWA considers these risks well managed and recommends ongoing monitoring during delivery.

Strategic benefits include improved effluent quality, reduced emissions, and deferred infrastructure investment. IWA recommends strengthening the benefits plan by linking service improvements to measurable performance indicators.